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ABSTRACT

Quantitative methods currently applicable to sex discrimination studies in higher education are discussed. The literature review concentrates on faculty selection procedures and service remuneration analysis. The latter category is further dichotomized and concerns salary differentials and promotion policy. Investigative procedures useful to institutional researchers attempting to support or refute service remuneration allegations are recommended, and an example of one such study at Youngstown State University is presented. (Author/KM)

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TITLE

Sexual Bias Analysis in Higher Education:
An Appraisal of Methodology Useful to Institutional Researchers

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STATEMENT OF PURPOSE

The purpose of this paper is (1) to examine existing quantitative, post hoc methods applicable to discriminative studies in higher education, (2) to recommend investigative procedures useful to institutional researchers attempting to quantitatively support or refute discriminative service remuneration allegations, and (3) to present an example of one service remuneration study conducted at Youngstown State University (Youngstown, Ohio) during the 1971-'72 academic year which utilized the above recommended procedures.

SUMMARY OF THE PAPER

The paper will discuss quantitative methods currently applicable to discrimination studies. Literature review will concentrate on two major areas, faculty selection procedures and service remuneration analysis. The latter category will be further dichotomized and will concern salary differentials and promotion policy.

Following literature review, a recommended procedure for investigating service remuneration will be presented.

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SEXUAL BIAS ANALYSIS IN HIGHER EDUCATION: AN APPRAISAL OF METHODOLOGY USEFUL TO INSTITUTIONAL RESEARCHERS*

PAPER FOR THE MAY 15-18, 1973
A.I.R. FORUM SUBMITTED BY:

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OVERVIEW

The majority of readers interested in the contents of this paper are well acquainted with the legislative history of the "affirmative action" doctrine of 1967. Introduced in ridicule by prominent Dixicrats opposed to the 1964 Civil Rights Act, the doctrine took the form of Executive Order Number 11375 and stated in part that:

> . . . (a federal) contractor will not discriminate against any employee or applicant because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that employees are treated during employment, without regard to their race, color, religion, sex or national origin (Seabury, 1972, p. 39).

The Dixicrats who introduced the word "sex" to that Civil Rights Act as an amendment never really expected the above executive order to be issued. As one contemporary writer has stated, the afterthought amendment was offered primarily "to rouse. . . Northern masculine ire against the whole bill" (Seabury, 1972, p. 38).

A short time after the Executive Order was signed, however, the Department of Labor quickly offered further guidelines under Order Number Four which read, in part:

> ". . . an acceptable affirmative action program must include an analysis of areas within which the contractor is deficient in the utilization of minority groups and women" (Seabury, 1972, p. 39).

Thus, the above guideline became the first national directive issued by a federal agency to universities concerning sexual discrimination allegation procedures on campus.

It took little time for the Labor Department's directive to

be cited by the Department of Health, Education and Welfare (HEW) as applicable to university hiring and remuneration practices. Executive Order 11375 quickly affected both public and private institutions of higher education. Columbia University and The University of Michigan obtained the uneviable distinction of being the first institutions of higher education where unacceptable affirmative action plans were defined by HEW authorities (Zwerdling, 1971).

Most institutional researchers realize that, long before the mandate of "affirmative action", universities have routinely reviewed their own hiring and remuneration practices. It is simply not good administrative practice to omit such analysis. Both faculty rapport and fiscal accounting practices rely heavily upon information secured through such studies.

With the HEW mandate, however, these routine institutional analyses emerged as a public as well as a private concern. Using Executive Order 11246, the Women's Equity Action League (WEAL) recently asked HEW to investigate alleged sexual discrimination throughout the State University Systems of Michigan, New York, California, Florida, and New Jersey. Under fire from the Contract Compliance division of HEW, the University of Michigan has recently written the nation's first affirmative action plan of equal sexual employment opportunities.

Other instances of anti-discrimination litigation and subsequent policy reorientation by colleges and universities could be cited. It is enough at this point to simply state that, regardless of how today's institutional researcher perceives his function, he is fast becoming the dejure anti-discrimination

fact-finder for his university.

STATEMENT OF PURPOSE

Something is wrong when a sexual bias allegation is easier to specify than is a related documentation methodology. Yet this appears to be the state of affairs in many of today's universities. This paper will attempt to show that it is only when researchers have not had the opportunity to either define relevant stratifying variables on which hiring and renumeration practices are based, or when they attempt to use statistical analyses inappropriate to the decisions to be made that documentation becomes less efficient than the precipitating allegation.

Let us begin with an examination of existing quantitative methods applicable to discrimination studies, follow with recommended investigative procedures deemed useful to institutional researchers charged with related analyses on their campus, and end with an example of one service renumeration study successfully conducted at Youngstown State University (Youngstown, Ohio) during the Spring of 1972.

REVIEW OF AVAILABLE METHODOLOGY

A reader performing a cursory review of existing literature will quickly find that few authors have written specifically on the topic of higher education service remuneration policy and related post hoc analyses. Indeed, at the date of this writing, HEW itself has failed to prescribe quantitative methodology commensurate with their affirmative action guidelines.

Today's administrative researcher must rely on specific methods at once unique to his institution and acceptable to affirmative action officials outside his organization. Fortunately, an increased coherence of research focus and procedures are now beginning to be reported in the professional journals. Many reports appear, at first glance, to be so contextually distinct from each other that the degree of external applicability seems low. Closer inspection, however, reveals that contemporary analysis procedures have evolved within a three-stage refinement of technique. Let us look briefly at these evolutionary trends.

The quantitative theory of faculty selection and remuneration procedure analysis seems to have been refined through three stages. Initially only an elementary quota model was used. Subsequent refinements to date have included a second regression model and a third Bayesian or decision theory model.

The quota model applicable in selection analysis was understandably refined during the mid-to-late sixties when American social conscience was most critical of minority oppression. Minority members were pictured as running a foot race with the majority. Track officials, noting that to stop the race, unshackle the American Blacks, then allow the runners to continue would still produce an unfair race provided the shackled runner with time to "catch up" before continuance of the contest.

With the acceptance of this analogy the quota model was tentatively accepted. Given this model it was a relatively simple matter for institutional researchers to define the presence or absence of selective racial or sexual bias by measuring the per-

cent of qualifiable minority applicants who were hired and promoted within their institution. If the percentage approximated the body count of minority in the population of all potential qualified applicants, minority repression allegations could assurredly be dismissed.

It took little time for officials to discern the shortcomings of the quota model. It failed to define adequate expertise levels of potential candidates, and "tooling-up" the minority using majority guidelines was not as easy as some had anticipated. Articles questioning and belittling quota model use began to appear. On November 6, 1972, a Berkeley Department Chairman was quoted in a national news weekly as stating: "We really looked for a qualified woman, but we just couldn't find one" (Newsweek, November 6, 1972, p. 114). At approximately the same time, Governor Milton Shapp (Pennsylvania) directed his state agency managers to recruit, train and promote as many women and other minority members as they could that year, but not to interpret his directive as representing a quota system. Obviously, even politicians were realizing that quota alone was not good enough.

Other social critics voiced displeasure in quotas with selective training riders. Intellectuals of the Jewish faith emphasized that, since the Carnegie Commission on Higher Education had determined that Jews comprise nine percent of the faculty in the nation's population (as contrasted with three percent of the nation's population), the affirmative action doctrine based on quotas and selective training mandated that Jews stop running their own footraces until the more recently unshakled acquire identical training and proportional membership. With increasing

frequency other critics voiced their opposition, and the quota model was quietly dismissed.

In its place emerged a second regression model, as typified by the studies of Loeb and Ferber (1971) and Astin and Bayer (1972). Multiple linear regression seemed, at first glance, to be better suited to faculty selection and remuneration bias analysis than quota analysis. It necessarily included indices of expertise which the simpler quota model failed to define, and it directly related the indices to accepted competency criteria.

The multiple regression equations were based upon an extension of bivariate linear regression analysis which produces prediction equations of the form:

$$\hat{Y} = \overline{Y} + b\,(X-\overline{X})$$

Where $\hat{Y}$ = predicted salary of candidate Y_i for his expertise level

b = regression coefficient of Y on X produced by differentiating with respect to X and setting it equal to zero

$\overline{X}$ = arithmetic mean of the X distribution

In multiple linear regression, more than one predictor (X) may be used to estimate the value of the criterion (Y). If Y_t denotes salary remuneration of t individuals and X_{it} represents a value of the i^{th} expertise predictor (e.g., years of service in the profession, terminal degree, number of publications, etc.) for the t^{th} individual faculty member, the partial linear regression equation useful for obtaining the weighted sum of $\hat{Y}_t$ is:

$$\hat{Y}_t = a_o + b_i X_{it} + b_k X_{kt}$$

where $\hat{Y}_t$ = is a predicted placement within a rank order candidate list or an existing faculty member's predicted salary

In the above equation, a_o is a constant, and the b's ($b_i \ldots b_k$) are defined as partial regression coefficients and are also constants. If the b's are reduced to standard scores so that comparisons across expertise areas can be made, the resultant standard measure (β's) are known as standard partial regression coefficients. They are useful to administrative researchers in that they are independent of original predictor units and may be used as an index of comparative weights each expertise predictor contributes to the predictive power of the equation. When using the β's properly, the researcher defines the variance of a composite of n weighted predictors as:

$$\sigma_{wp} = \Sigma\beta_i^2 + 2\Sigma r_{ij}\beta_i\beta_j$$

where σ_{wp} = variance of a sum of n weighted predictors

β_i = standard partial regression coefficient of the i^{th} predictor

r_{ij} = correlation between X_i and any other variable X_j where $j>i$

β_j = standard partial regression coefficient of the j^{th} predictor, with $j>i$

Usually a multiple regression analysis produces a multiple coefficient of correlation ($R_{1,2 \ldots i}$), which is derived in the analysis simultaneously with β_i and b_i generations. Like all

product-moment correlation coefficients, R indicates the extent of relationship between two interval or better measures linearly related. In salary studies, it becomes the correlation between salary and the total collective of stratified predictor variables consisting of the weighted sum of scores generated in the β and b determinations. In geometric terms, R is the slope of the least squares line of best fit connecting these two variables of supposedly equal variability. The obtained R is always a maximum value when the regression weights have been correctly defined. The terminal product of multiple linear regression analysis usually consists of a multiple correlation coefficient and prediction equation such as:

$$\hat{Y} = 9600 + 200X_i + 10X_2 + 10X_3 + 500X_4$$

In this ficticious example, if $\hat{Y}$ represented average salary of a predefined population and $X_1 \ldots X_4$ represented predictors properly represented by an interval scale and of approximately equal variability, the researcher could properly state that every unit increase in X_i (e.g., number of publications) is associated with a salary increase of $200.

As in the case of bivariate linear regression, the above prediction equation has an associated standard error of estimate and related variance partitioning procedures useful in establishing confidence intervals and checking the assumption that the relation investigated is truly linear.

As noted earlier, studies by Loeb and Ferber (1971), and Astin and Bayer (1972) used multiple regression analysis to investigate allegations of sexual discrimination. Loeb and

Ferber's technique involved a proportioning of variance prior to regression analysis, while Astin and Bayer employed a stepwise multiple regression analysis directly on a multitude of expertise variables. Both of these studies are worth reading. Care, however, should be taken by the reader in interpreting some results. Researchers acquainted with basic linear regression using least squares criterion and the general linear hypothesis techniques developed by Bottenberg and Ward (1963), will quickly see unwarranted data assumptions in both publications.

Assuming for the moment that their assumptions were justified, Loeb and Ferber reasoned that sexual discrimination existed if the sex variable itself added significantly to the predictability of salary after average match salaries have been used within the multiple regression analysis. They performed a sample survey, then matched faculty by department, rank, publications, degree, and academic honors. A routine regression analysis was performed using independent predictors, then a stepwise multiple regression was attempted using sex-by-predictor indices. The two interactive indices of strongest predictive power were found to be sex-by-merit and sex-by-experience. The authors were able to conclude after their investigation that:

> Papers read at meetings, honors, and if sex is known, bulletins and technical reports, and years spent at the University of Illinois at the current rank are significant predictors of salary (Loeb and Ferber, 1971, p. 243).

The authors then attempted to place dollar amounts on the degree of sexual discrimination, but found they could only use nonstandardized regression weight ratios to define the "average

yearly dollar value of masculinity" (Loeb and Ferber, 1971, p. 246). In the authors own words, "the data (did) not clearly allow estimation of the magnitude of the discrepancies between the sexes" (Loeb and Ferber, 1971, p. 243).

The Astin and Bayer investigation concentrated on three criterion variables (academic rank, tenure status, and salary) and four sets of predictor variables (demographic, education, professional/work activities and employing institution). Analytic procedures consisted of routine stepwise multiple linear regression, as cited in standard texts. The authors used a total of 33 predictors of salary and found that "64 percent of the variance in salary (was) explained on the basis of the 33 . . . variables" (Astin and Bayer, 1972, p. 108). Another finding deemed significant by the authors was that:

> The three most important variables in explaining salary differentials were rank, productivity and type of parent institution (Astin and Bayer, 1972, p. 108).

Significant predictors of academic rank were found to be the doctorate, years in academe, and publications for both men and women. In considering rank as well as salary, Astin and Bayer added an additional dimension to their analysis with no appreciable change in analytic procedure.

Like Loeb and Ferber, Astin and Bayer's concluding statements could only deal with such topics as explained variance between the sexes and significant predictors of promotion and salary within each sex. These types of statements obviously help discern if discrimination exists within a faculty group, but they do not allow an individualized study of faculty commensurate with individual faculty discrimination allegations.

There are other disadvantages to using the multiple regression approach besides the inappropriate indices generated. The technique always requires that, when alleged bias between two groups is studied, the predictor variables chosen be complete in their definition of pre-existing group differences (Lord, 1967), have perfect predictor reliability (Linn and Werts, 1971), and be themselves unbiased measures of accomplishment (Thorndike, 1971). In the opinion of Thorrdike, all of the three qualifications are usually substandard when used in remuneration and placement analysis (Thorndike, 1971). Add to these qualifications the inflation problems associated with using many predictors to artificially raise a multiple R and the technique becomes even more questionable.

In summary, there is considerable evidence to suggest that the multiple regression approach is inappropriate for an institutional analysis of alleged sexual discrimination. With reference to faculty salaries and promotion analysis, it is not specific to members within the group, it has a built-in bias when many predictors are used to generate the multiple R's, the categories within the predictor variables themselves are often not orthogonal, and the indices produced are not readily understood by the average affirmative action official.

Concerning hiring practices, the fact that many administrators use predefined, multiple cutoff strategies in screening applicants further prohibits the use of the multiple regression rationale. Academic Deans and Department Chairmen are in general agreement that outstanding candidates possess areas of expertise for which there is no substitute. Candidates below

minimum competencies in one criterion area are not generally defined as assets to a college, even if they are superior in other areas specified as predictors in the multiple linear regression equation.

Screening Committee members who eliminate candidates lacking essential skills intuitively reject multiple R rationale. In eliminating the applications of individuals who lack one or more essential skills or experience qualification normally included as predictors of successful accomplishment in academe, administrators reject the foundation of regression analysis (the selection of candidates with the highest level of summative qualifications who may compensate on expertise credential with exception skills or experience in other cognates) (Anastasi, 1968).

The best alternative approach for quantifying institutional selection and remuneration of faculty appears to be a tool researchers have had for a long time, elementary Bayesian and cross-tabulation analysis. The American College Testing Program's Research and Development Division, under the direction of Melvin Novick, is currently the most knowledgeable authority on Bayesian techniques as applied to selection procedures. It appears that simple, computer-assisted cross-tabulation of salary and promotional remuneration based upon accepted expertise variables is the best technique for documentation in response to discrimination allegations. Two references recommended for review of such methods are (1) Bias in Selection (Cole, 1972), and Statistical Package for the Social Sciences (SPSS) (Nie, Bent and Hull, 1970).

Cole's research report first introduces the reader to basic Bayesian considerations, then guides him through a brief history of selection analysis as interpreted through Bayesian theory. The analytic models considered, in order of complexity, include the quota and regression models previously discussed in this paper plus the Darlington model. The SPSS manual is an extremely powerful computer software package that is readily adaptable to institutional research work.

All models discussed by Cole allow the researcher to use quantifiable "priors" of his institution to predict chances of selection for candidates with predefined expertise levels of competence. Although the bulletin is written specifically for admissions officers who wish to insure equal opportunity of selection based upon achievement scores, it does provide a rationale useful for institutional researchers. If a university has available a campus-wide format for screening applicants, many ideas within the bulletin can be used directly.

If screening procedures are less formal, one may still use Bayesian techniques to investigate alleged discriminatory hiring practices. The only requirement is that the number of potential applicants for a position and related existing conditions of current faculty of similar position are known. For example, suppose that there is available a file or document which defines the proportion of female to male candidates graduating with appropriate credentials in the field of English. Let's arbitrarily state that this proportion is .35 to .65 for females to males, respectively.

Denoting males by M and females by F for a random candidate,

the probabilities associated with each sex may then be assumed to be:

$$P\{M\} = .65$$

$$P\{F\} = .35$$

Next, suppose that D represents an instance of a discrimination allegation against an institution. If that institution can, through a breakdown and cross-tabulation of qualifications, salary, and promotions of current faculty, determine an index of discrimination judgments of progress toward anti-discriminatory practices can be attempted. From the index, the percent of M and F expected to be discriminated against if current policy continues can be derived, and a conditional probability statement can be defined.

Suppose, for instance, that previous statistical breakdown analysis indicates a mean difference of $1500 between M and F English faculty after all relevant variables of remuneration have been controlled. Further statistical cross-tabulation analysis indicates that 75 percent of the females and 25 percent of the males were discriminated against, as defined by such salary differentials. In terms of conditional probabilities

$$P\{D|F\} = .75$$

$$P\{D|M\} = .25$$

According to Bayes theorem, the probability that a female candidate will be hired if interviewed (that is not discriminated against when credentials are identical to male applicants) is:

$$P\{F|D\} = \frac{P\{D|F\}\ P\{F\}}{P\{D|F\}\ P\{F\} + P\{D|M\}\ P\{M\}}$$

$$= \frac{(.75)\ (.35)}{(.75)\ (.35) + (.25)\ (.65)}$$

$$= (.262)/\{(.262) + (.162)\}$$

$$= .111$$

Without prior information of the extent of existing discrimination within the English Department, it would be assumed that the probability of a female being hired is .35. With selected "priors", however, expectation of the female candidate is considerably reduced.

Once a university has adequately analyzed existing promotion and salary indices, and have systematically reviewed and defined criteria of placement and promotion, the institutional researcher should have little trouble using either the Bayesian or routine cross-tabulation procedures. There are only two restrictions associated with these types of analyses. The first is that all relevant criteria on all faculty must be known. The second is that only the most relevant and discriminating indices (between the sexes) must be used in initial cross-tabulation work. Concerning the latter restriction, the number of variables used in alleged discrimination cases generally should not be greater than four. If this number is exceeded, it is likely that the number of empty cells in the initial tabulation matrix will prohibit further investigations. Pragmatically, it is difficult to discuss individual competencies with more than this number of qualifiers, and analytic procedures usually emphasize the limita-

tions of such conversation.

AN EXAMPLE OF A SALARY REMUNERATION STUDY

The above recommended methodology has been used with success at Youngstown State University (YSU, Youngstown, Ohio) during the 1971-72 academic year. At YSU, the administration asked the Department of Institutional Research to conduct a descriptive study of faculty salary differentials and promotion history in preparation for affirmative action policy definition in 1972-73. An elementary breakdown and cross-tabulation analysis was performed using the University's IBM 360-50 computer and SPSS software. Results of the analysis were used to assess the degree of remuneration discrimination both within departments and university-wide. Further Bayesian projections of placement discrimination were performed, but only within individual departments for which priors could be accurately defined. The following abbreviated report presents the primary results of this analysis.

YOUNGSTOWN STATE UNIVERSITY

SALARY DIFFERENTIAL STUDY (1971-1972)

PURPOSE

During the Spring term, 1972, Institutional Research conducted a descriptive study of faculty salary differentials at Youngstown State University. The study sought to answer the two basic questions:

(1) If (a) academic rank, (b) highest earned academic degree, and (c) years since last promotion are controlled within academic departments, are the remunerations of women the same as or different from that of men?

(2) If only highest earned degree is controlled, is there evidence of discrimination by sex in either academic rank or promotion?

PROCEDURES AND VARIABLES

Salary differential data were analyzed using the Statistical Package for the Social Sciences (McGraw-Hill) subprogram BREAKDOWN on the University's I.B.M. 360-50 computer.

The main variable of salary was analyzed within academic departments and blocked on the following controls with appropriate definitions:

(A) RANK (academic rank)
- (a) Instructor
- (b) Assistant Professor
- (c) Associate Professor
- (d) Professor

(B) DEGREE (highest earned academic degree)

- (a) Masters (M.A., M.Ed., M.B.A., etc.)
- (b) Doctorate (Ph.D., Ed.D., D.M., etc.)
- (c) All other degrees (first level, J.D., or none)

(C) PMTN (years since last promotion)

- (a) 0-3 years
- (b) 3-7 years
- (c) 7 or more years

POPULATION

The population of the study consisted of all Youngstown State University faculty members who were nine month, full-service teaching personnel contracted for the 1971-72 academic year.

All full-service faculty were classified according to their primary department of academic assignment (based upon hours of instruction).

SALARY STUDY RESULTS

When controls were exercised for rank, degree, and years at Y.S.U. since last promotion, salary differences by sex were found to exist in the following departments:

Dept. 1 (salaries higher for males at Assistant Prof. level).
Dept. 2 (salaries higher for males at Assistant Prof. level).
Dept. 3 (salaries higher for males at Assistant Prof. level).
Dept. 4 (majority of salaries substantially higher for males; see table for details).
Dept. 5 (salaries higher for females at Assistant Prof. level).
Dept. 6 (salaries higher for females at Instructor level).
Dept. 7 (salaries higher for females at Assistant Prof. level).
Dept. 8 (salaries higher for males at Assistant Prof. level).
Dept. 9 (salaries slightly higher for females at Instructor level, but substantially higher for males at the Assistant Prof. (3-7 years) level).
Dept. 10 (salaries slightly higher for males at Instructor level, but substantially higher for females at the Assistant Prof. level).
Dept. 11 (salaries higher for males at Assistant Prof. level).
Dept. 12 (salaries higher for males at Associate Prof. level).
Dept. 13 (salaries higher for males at Assistant Prof. and Associate Prof. level).

Specific salary figures of these departments may be found in Table 1 of this paper.

NOTES ON SALARY STUDY RESULTS

1) The results itemized above do not necessarily indicate that discrimination did not exist in unnamed departments, but only that significant salary differences did not appear when the above variables were controlled. Many departments simply did not have enough faculty members to control all the highly discriminant variables mentioned above.

2) No proof was found that the salary differences in the

thirteen (13) departments above could be attributed exclusively to discriminatory salary practices. Two variables (not within the purview of this particular study) which resisted control were merit raises and special assignments. It is obvious that these two, as well as discriminatory salary practices, could cause salary differences. Department chairmen are encouraged to review specific remuneration procedures with references to these two added variables.

3) For optimum value, the chairmen of the above departments should examine the detailed salary history of the specific faculty personnel concerned for evident cause of these salary differences.

ADDITIONAL SALARY STUDY COMMENTS

(1) This study omitted many classifications where appropriate matchings were impossible. The investigator should use caution in interpreting all Table 1 entries.

(2) An interpretation of the data in the table may be stated for the first entry as:

"Within Department 1, the one female assistant professor with a master's degree and 3-7 years experience since achieving her aforementioned rank earned $133 less than comparable males within the same department during the 1971-72 academic year."

(3) Most prominent disparity of salary in the obtainable data was found in departments number four (-1317, +1138, -1800, -1600, -883, -1400), five (-1400), seven (+1200), eight (-1800), nine (-3825), ten (+1250), and thirteen (-1875 and -2900).

(4) Using other original output obtained by Institutional Research, it is also possible to investigate potential salary biases besides sex. For instance, if the reader hypothesizes that discrimination exists between faculty who had and did not have spouses working in the area (a check on nepotism practices) data is available which differentiates "MARRIED, SPOUSE WORKING" from "MARRIED, SPOUSE NOT WORKING" classifications.

TABLE I

SEX SALARY DIFFERENTIAL OVERVIEW (SALARY CONTROLLED FOR RANK, DEGREE, AND PMTN WITHIN DEPARTMENTS)

DEPT. (SUBFILE)	DEPT.MEAN (SALARY)	N	DEPT. STD.DEV. (SALARY)	MALE MEAN SALARY (CONTROLLED)	N	FEMALE MEAN SALARY (CONTROLLED)	N	DEGREE OF FEMALE DISCRIMINATION	CLASSIFICATION VARIABLES OR F FOR NO DATA
1	$ 10,592	10	$ 1,297	$ 9,733	3	$ 9,600	1	$ -133	Asst. Prof., Master, 3-7 yr
2	12,278	18	1,758	11,400	1	10,500	1	-900	Asst. Prof., Master, 0-3 yr
3	13,317	18	1,556	12,680	5	11,450	1	-1230	Asst. Prof., Doctor, 0-3 yr
4	12,746	13	2,788						No match on PM possible
5	11,224	39	2,772	8,267	6	8,400	1	+133	Instructor, Masters, 0-3 y
				8,700	1	8,400	1	-300	Instructor, Masters, 7 or yrs.
				11,717	3	10,400	1	-1317	Asst. Prof., Master, 7 or m yrs.
				11,362	8	12,500	1	+1138	Asst. Prof., Doctor, 0-3 yr
				13,00	1	11,200	2	-1800	Asst. Prof., Doctor, 7 or m yrs.
				14,600	1	12,800	1	-1600	Assoc. Prof., Doctor, 0-3 yr
				13,633	3	12,750	1	-883	Assoc. Prof., Doctor, 3-7 yr
				18,900	1	17,500	1	-1400	Prof., Doctor, 7 or more yrs.
6	12,367	9	2,134	10,200	1	11,600	1	+1400	Asst. Prof. Doctor, 0-3 yr
7	12,260	5	1,447						No females in subfile
8	11,738	4	673						No matches on possible
9	10,509	16	2,403	7,400	1	7,650	1	+150	Instructor, Master, 0-3 yr

TABLE I (CON'T.)

DEPT. (SUBFILE)	DEPT.MEAN (SALARY)	N	DEPT. STD.DEV. (SALARY)	MALE MEAN SALARY (CONTROLLED)	N	FEMALE MEAN SALARY (CONTROLLED)	N	DEGREE OF FEMALE DISCRIMINATION	CLASSIFICATION VARIABLES OR REA FOR NO DATA
10	$ 12,338	18	$ 2,676	$ 10,600	1	$ 11,800	1	+1200	Asst. Prof., Doctor, 3-7
11	12,752	25	2,023	13,200	1	11,400	1	-1800	Asst. Prof., Master, 7 or mor yrs.
12	13,600	6	2,249						No females in subfile
13	12,609	11	2,314						No females in subfile
14	10,254	12	2,280	8,700	3	8,800	1	+100	Instructor, Master, 3-7 yrs.
				10,825	2	7,000	1	-3825	Asst. Prof., Master, 3-7 yrs.
15	11,793	15	2,426	9,450	1	9,250	1	-200	Instructor, Master, 3-7 yrs.
				11,325	4	12,575	2	+1250	Asst. Prof., Doctor, 0-3 yrs.
16	12,578	9	1,820						No matches on DEGREE possible
17	11,562	4	1,826						No females in subfile
18	13,053	9	1,851						No matches on PM possible
19	11,486	7	2,240						No females in subfile
20	12,263	16	2,777						No females in subfile
21	11,643	7	2,142						No females in subfile
22	12,406	9	1,090	12,600	1	12,200	1	-400	Asst. Prof., Doctor, 3-7 yrs.
23	12,350	7	2,187						No matches on DEGREE possible
24	12,860	5	1,388						No females in subfile

TABLE I (CON'T).

DEPT. (SUBFILE)	DEPT.MEAN (SALARY)	N	DEPT. STD.DEV. (SALARY)	MALE MEAN SALARY (CONTROLLED)	N	FEMALE MEAN SALARY (CONTROLLED)	N	DEGREE OF FEMALE DISCRIMINATION	CLASSIFICATION VARIABLES OR REASON FOR NO DATA
25	$13,808	6	$ 222	$13,325	2	$12,500	1	-825	Assoc. Prof., Doctor, 0-3 yrs.
26	13,380	2	919						No females in subfile
27	15,133	3	1,328						No females in subfile
28	13,640	5	1,457						No females in subfile
29	13,643	7	1,562						No females in subfile
30	13,500	2	2,121						No females in subfile
31	13,929	7	2,328						No females in subfile
32	13,075	4	1,320						No females in subfile
33	11,710	24	2,074	11,375	6	9,500	1	-1875	Asst. Prof., Master, 0-3 yrs.
				14,750	1	11,850	1	-2900	Assoc. Prof., Master, 3-7 yrs.
34	8,250	4	624						No males in subfile
35	11,867	3	681						No females in subfile
36	12,462	7	1,559						No females in subfile
37	13,300	1							No males in subfile
38	8,945	10	880						No males in subfile
39	9,200	2	283						No males in subfile

(5) Institutional Research plans to run a salary study of this type each Fall to up-date descriptive analyses of salary practices where applicable within the University.

ACADEMIC RANK AND PROMOTION RESULTS

When controls were exercised for earned degree, there appeared no evidence of University-wide discrimination by sex in academic rank or promotion.

Analysis of data revealed that male faculty members account for 78.1% of the teaching faculty at the University. Males possess 89.8% of the earned doctorates of their teaching fields and have approximately the same percent of membership within academic ranks requiring earned doctorates (assistant professor, associate professor, and professor) as their own University population. Further, the figures for earned degree within each of the academic ranks above instructor were found to approximately equal the percent of males within respective RANK BY PMTN blocks.

Within the rank of instructor, the proportion of men and women possessing both the highest and lower academic credentials were approximately equal (two males and no females with earned doctorates were classified as instructors, while 29 males and 21 females with lower credentials were classified as instructors).

When comparing academic rank (promotion) with academic credentials, women:

a. hold 10.2% of the earned doctorate, yet hold 14.3% of professorships and 13.5% of associate professorships, the two highest academic ranks.

b. hold two-thirds (66.7%) of the lower academic credentials but only one-half of the lowest academic rank - instructor.

In summary, women were concentrated numerically in the lower two academic ranks but, at the same time, reflected similar academic credentials (25.3% doctorates, 74.7% non-doctorates).

ADDITIONAL ACADEMIC RANK AND PROMOTION COMMENTS

Although there may well be discriminatory treatment of women within individual departments at Y.S.U., it does not seem to be reflected in promotions in academic rank throughout the University.

One could make generalizations that the low percentage of earned doctorates among females could be attributed to the fact

that women often specialize in fields that do not necessarily regard the doctorate as significantly as do other disciplines. This may be true at Y.S.U. in Nursing, Business Education, and Secretarial Studies. However, in Art and Music (which also have a small percentage of earned doctorates), this does not seem to be true. In English, in which 15 men and 8 women have doctorates, 10 men and 10 women have master degrees.

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